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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/746,423	12/26/2000	Michael J. Wingrove	77851-51/jpw	2088

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EXAMINER	
BAYARD, EMMANUEL	
ART UNIT	**PAPER NUMBER**
2631	5

DATE MAILED: 05/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/746,423	WINGROVE, MICHAEL J.
	Examiner	Art Unit
	Emmanuel Bayard	2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 December 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-XXX are rejected under 35 U.S.C. 102(e) as being anticipated by Greszczuk et al US 2002/0150152 A1.

As per claims 1, 4 and 9, Greszczuk et al discloses a method of notifying a receiver of a bit allocation change in a multicarrier modulation communications system in which data frames and synchronization frames are transmitted in superframes from a transmitter to the receiver, comprising the steps of: at the transmitter (see fig.1 element 12), changing an inversion state of successive synchronization frames to notify the receiver of a bit allocation change (see col.2, paragraph [0022-0023 and col.3, paragraph 0025-0027] ; and at the receiver (see fig.1 element 16), detecting a change in inversion state of received synchronization frames to determine the bit allocation change (see . col.3, paragraph 0025-0027 and col.4, paragraph 0034, 0036].

As per claim 2, Greszczuk er al does teach a transmitter comprising: information for allocating data bits (see fig.1 element 28 and col.2, paragraph 0022) to multicarrier sub channels for transmission in respective data frames; a control unit for controlling (see fig.1 element 32 and col.2, paragraph 0024 and col.3, paragraph0025-00227) transmission of the data frames in superframes each including a synchronization frame; and means for changing an inversion state

(see fig.1 element 20 and col.3, paragraph 0032) of the synchronization frames to indicate a change of said information, successive changes of said information being indicated by opposite changes of the inversion state of the synchronization frames, respectively from non-inverted to inverted synchronization frames and from inverted to noninverted synchronization frames.

As per claim 3, Greszczuk et al does teach the receiver comprising: information for decoding (see fig.1 element 58 and col.3, paragraph 0026) received multicarrier sub channel data frames to data bits in accordance with bit allocations, the data frames being received in superframes each including a synchronization frame; and a control unit (see element 32 and col.3, paragraph 0027-0028) for detecting a change of an inversion state of successive synchronization frames and changing said bit allocations in response to such detection, successive changes of said bit allocations being effected in response to detection of opposite changes of the inversion state of the synchronization frames, respectively from noninverted to inverted synchronization frames and from inverted to non-inverted synchronization frames.

As per claim 5, Greszczuk et al does teach the transmitter comprising: a bit allocation table in accordance (see fig.1 element 28 and col.2, paragraph 0022) with which data bits are allocated to tones for transmission in respective DMT symbols; a control unit for controlling (see fig.1 element 32 and col.2, paragraph 0024 and col.3, paragraph0025-00227) transmission of the DMT symbols in superframes each including a synchronization symbol; and means for changing an inversion state of the synchronization symbols to indicate a change (see fig.1 element 20 and col.3, paragraph 0032) of the bit allocation table, successive changes of the bit allocation table being indicated by opposite changes of the inversion state of the synchronization symbols,

respectively from noninverted to inverted synchronization symbols and from inverted to non-inverted synchronization symbols.

As per claim 6, Greszczuk et al inherently includes an IDFT (Inverse Discrete Fourier Transform) and the means for changing an inversion state of the synchronization symbols to indicate a change of the bit allocation table comprises means for changing a sign of inputs to or outputs from the IDFT.

As per claim 7, Greszczuk et al inherently includes the transmitter includes a pseudo random data source in accordance with which tones of the synchronization symbols are modulated, and the means for changing an inversion state of the synchronization symbols to indicate a change of the bit allocation table comprises means for selectively inverting an output of the pseudo random data source.

As per claim 8, Greszczuk et al does teach receiver comprising: a bit allocation table (see fig.1 element 64) in accordance with which DMT symbols are decoded to data bits, the DMT symbols being received in superframes each including a synchronization symbol; and a control unit for detecting a change of an inversion state (see element 32 and col.3, paragraph 0027-0028) of successive synchronization symbols and changing the bit allocation table in response to such detection, successive changes of the bit allocation table being effected in response to detection of opposite changes of the inversion state of the synchronization symbols, respectively from non-inverted to inverted synchronization symbols and from inverted to non-inverted synchronization symbols.

As per claim 10, Greszczuk et al does teach the steps of counting the superframes (see fig.1 element 34 and col.3, paragraph 0025) in synchronism at the transmitter and at the receiver, wherein the acknowledgement identifying a superframe comprises a superframe number.

As per claim 11, Greszczuk et al does teach the transmitter comprising: a bit allocation table in accordance with which data bits are allocated (see fig.1 element 28 and col.2, paragraph 0022) to tones for transmission in respective DMT symbols; a control unit for controlling (see element 32 and col.3, paragraph 0027-0028) transmission of the DMT symbols in superframes each including a synchronization symbol, the control unit including means for sending said acknowledgement identifying a superframe in response to a request from the receiver for a change of bit allocations; and means for changing (see . col.3, paragraph 0025-0027 and col.4, paragraph 0034, 0036] said bit allocation table and an inversion state of the synchronization symbols commencing with the identified superframe.

As per claim 12, Greszczuk et al inherently teaches the transmitter includes an IDFT (Inverse Discrete Fourier Transform) and the means for changing an inversion state of the synchronization symbols comprises means for changing a sign of inputs to or outputs from the IDFT.

As per claim 13, Greszczuk et al inherently teaches the transmitter includes a pseudo random data source in accordance with which tones of the synchronization symbols are modulated, and the means for changing an inversion state of the synchronization symbols comprises means for selectively inverting an output of the pseudo random data source.

As per claim 14, Greszczuk et al inherently teaches the receiver comprising: a bit allocation table in (see fig.1 element 64) accordance with which DMT symbols are decoded (see

fig.1 element 58 and col.3, paragraph 0026) to data bits, the DMT symbols being received in superframes each including a synchronization symbol; and a control unit (see element 32 and col.3, paragraph 0027-0028) for sending said request for a change in bit allocations, detecting the acknowledgement and identified superframe, and detecting the change in the inversion state (see . col.3, paragraph 0025-0027 and col.4, paragraph 0034, 0036] of received synchronization symbols and changing said bit allocation table commencing with the identified superframe.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Chow et al U.S. patent 6,4048,033 B1 teaches a method and apparatus for superframe bit allocation.

Greszczuk et al U.S. patent No 6,445,730 B1 teaches a multicarrier transmission system.

Chow U.S. Patent No 6,128,349 teaches a method and apparatus for superframe bit allocation.

Sands et al U.S. Patent No 6,134,283 teaches a method and system for synchronizing time division duplexed transceivers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Bayard whose telephone number is 703 308-9573. The examiner can normally be reached on Monday-Friday (7:Am-4:30PM) Alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on 703 306-3034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Emmanuel Bayard
Primary Examiner
Art Unit 2631

5/4/04